BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB

Volume 88
Number 5

Published: 1st May 1968

The six hundred and fifty-first meeting of the Club was held at the Rembrandt Hotel, London, on the 16th April, 1968.

Chairman: Mr. R. S. R. Fitter

Members present: 18; Guests 5.

Mr. Philip Wayre, Director of the Ornamental Pheasant Trust, showed and commented upon a colour film made by him in Taiwan, the main theme being the sending by the Trust of thirty Swinhoe's Pheasants bred in the Trust's collection at Great Witchingham, Norfolk, as a gift to the Taiwan Government.

Six pairs of the birds were released in a forested area of several hundred square miles, an uninhabited place under the control of the University of Taipeh. The remaining birds are being kept in aviaries where they should breed, and any resulting young will be released.

Seven wild specimens of Swinhoe's Pheasant were seen by Mr. and Mrs. Wayre on their tour of the island, but only one of the other indigenous pheasant, the Mikado, *Syrmaticus mikado*, which appears to be the rarer of the two and which certainly inhabits less accessible places and higher altitudes. Both species are now protected by the Taiwan authorities.

Notes on the diving-petrels

by W. R. P. Bourne

Received 8th March, 1968

The diving-petrels of the genus *Pelecanoides* are a group of extremely similar small petrels which ecologically replace the smaller auks Alcidae and especially the Little Auk or Dovekie *Plautus alle* in the southern hemisphere. They have been the subject of a classic review by Murphy and Harper (1921) who first demonstrate the remarkable convergence in form and appearance between these two apparently unrelated groups, and then go on to recognise five species of diving-petrel, the large Potoyunco or Peruvian Diving-petrel *P. garnoti* frequenting the area of cool upwelling water off western South America; the medium-sized Magellanic Diving-petrel, *P. magellani* occurring in the marine channels of southern South America; the small Georgian Diving-petrel *P. georgicus* occurring at South Georgia and by repute Macquarie Island; *P. exsul* occurring at other islands in those latitudes, and a number of races of *P. urinatrix* found around the coasts and islands of the Subantarctic Zone to the north of it.

Further study by a number of authors has suggested that the first three, which have a rather similar nasal structure, are indeed well-defined allopatric entities, but that *P. exsul* and *P. urinatrix* which both have a rather distinct nasal structure, while themselves allopatric, may at times be sympatric with at least two of the other three forms, and these are now usually treated as conspecific under the name Common Diving-petrel *P. urinatrix*. It is the purpose of these notes to document the sympatry of members of the genus and compare again the character of the different populations of the *urinatrix* group.

Although Murphy collected a vast series of *P. georgicus* when he discovered it on South Georgia, he found only the one species there. Most subsequent investigators have reported it too, while several recent authors including Murphy himself (1964) have mentioned that *P. urinatrix* has also recently been found there as well, though details seem not to have been published previously. They are of some interest; apparently attention was first drawn to the fact that two species might be present by Dr. Theresa Clay when she found that a series of spirit specimens of *Pelecanoides* in the British Museum (Natural History) taken by Dr. W. L. N. Tickell on Bird Island between January and March, 1959 carried two species of feather-lice, and on further examination by Dr. R. A. Falla the series was found to include two species of diving-petrel. *P. georgicus* and *P.* (*u.*) *exsul*. Most of the birds were collected as they flew into the base lights on foggy nights, including six *P.* (*u.*) *exsul* on 14th February and four more with four *P. georgicus* on 18th February, but the series also includes a feathered chick of *P.* (*u.*) *exsul* aged some six-eight weeks dug out of fine scree slopes at 400 ft. above the tussock zone on 11th January. A further search of the British Museum collections revealed not only more spirit specimens of *P. georgicus* including one from Grytvicken on 15th October, 1928 and two from the nest at Maivecken registered in 1931, but also the skin of a female *P.* (*u.*) *exsul* with a large ovary taken off Gryfiske on 15th October, 1956. Nearer South America a male *P.* (*u.*) *exsul* was also taken off the isolated Shag Rocks on 2nd September, 1934.

The series of *P.* (*u.*) *berard* from the Falkland Islands, where this is again the only species previously recorded, also proves to contain two examples of another species, also apparently first identified by Dr. Falla, this time *P. magellani*, including one without data registered in 1888, and a male taken by J. E. Hamilton at Cape Pembroke Light on 29th March 1930, a locality from which he also had *P.* (*u.*) *berard* on other dates. An example of *P. magellani* preserved in spirit with six *Garrodia nereis* and a "Discovery" label marked "Two packets of petrels, lighthouse, 1936" may also have come from here, as may an unlabelled spirit specimen of *P. magellani* brought home by the British Graham Land Expedition the same year. It has already been implied by Murphy (1936) that these two may breed in the same area off southern South America, although the nesting place of *urinatrix* there does not seem to have been found yet (Johnson, 1965), and the British Museum spirit collection also proves to contain a specimen of the *urinatrix* group of races taken in the centre of the range of *P. magellani* just north of the Straits of Le Maire on 29th April, 1927. Thus birds of the *P. urinatrix* type may well be sympatric with *P. magellani* as well as *P. georgicus* in this region.

Table 1

Comparisons of some selected series of *Pelecanoides*

	Number	*Wing*	*Tail*	*Culmen*	*Taraus*	*Mid-toe*
P. georgicus from South Georgia:—						
in spirit	7	110—120	35—43	15—17	23—26	27—31
		115±1.0	38.7±2.6	15.7±.73	24.7±1.2	28.3±1.3
dry skins	6	113—118	37—41	all 15	24—25	28—31
		117±2.1	39.5±1.3		24.7±.50	28.9±1.3
P. urinatrix from South Georgia:—						
in spirit	11	116—124	38—40	15—18	25—27	30—33
		120±3.3	39.1±.78	15.9±.89	25.9±.89	31.5±.89
dry skins	2	119, 121	37, 39	17, 18	25, 26	31, 32
P. urinatrix from Gough Island:—						
dry skins	8	114—117	31—38	15—16	23—25	30—31
(Bourne)		115±1.0	34.8±2.2	15.5±.50	24.0±.5	30.3±.50
in the field	107	107—125	34—45	13—18	18—25	27—38
(Swales, 1965)		117±(3?)	38.9±2.5	15.7±.79	21.2±1.1	31.5±2.0
All skins of the *urinatrix* group:—						
Dry skins	96	108—135	31—43	14—18	23—28	28—37
(Bourne)		120±5.1	38.7±2.4	16.1±.92	25.5±1.2	31.5±1.8

Measurements here and in Table 2 include the range, mean and standard deviation in mm.; measurements of skins and spirit specimens seen roughly comparable; I am at a loss to explain discrepancies with birds measured in the field, which are presumably due to variations in measuring technique.

In addition to demonstrating the distinctness of three very similar diving-petrels in the South American area, the growing but still inadequate range of specimens available also serves to raise doubts about the status of some other subspecies of the *urinatrix* group in view both of the wide range of individual variation now becoming apparent in some populations and the possible occurrence of sympatry in closely related forms. Although it will be seen from Table 1 that all specimens of the *P. urinatrix* assemblage taken together show little more variation than Swales (1965) found in a large series of birds examined in the field on Gough Island alone, nonetheless Table 2 also shows that this variability conceals some important average differences, including especially the occurrence of two populations of different sizes in the New Zealand area. It seems difficult to decide what importance should be attached to measurements taken by several observers in the field (Bourne, 1966), but a comparison of those taken by one observer from skins and spirit specimens in Table 1 suggests that in museums at least they are consistent enough to deserve study.

(Among the named forms of *P. urinatrix* it seems doubtful whether there is justification for separating *belcheri* from *urinatrix*; *chathamensis* from *dacunhae*, or *coppingeri* from *exsul*, though if further evidence indicates sympatry, *urinatrix* with *belcheri* may require to be separated as a distinct species from the other forms, for which the specific name *P. berard* would then take priority. Other specimens seen include the head of the first bird from the South Orkneys found on the beach at Signy Id. by J. R. Beck on 12th February, 1967, which is hard to identify, but is probably *P. georgicus*.)

Table 2

Dimensions of population of *Pelecanoides*

	Number	*Wing*	*Tail*	*Culmen*	*Tarsus*	*Mid-toe*
P. garnoti						
Chile, Peru	13	135—147	35—44	19—21	32—35	33—39
		140±3.7	40.1±2.6	20.0±.75	33.4±.93	37.4±1.7
P. magellani						
Argentine, Chile, Falklands	12	120—131	39—46	15—16	26—28	32—35
		125±3.6	41.6±2.1	15.5±.50	27.3±.64	33.8±1.0
P. georgicus						
total	29	109—124	35—43	14—17	23—26	27—31
		117±3.8	39.2±1.8	15.1±.90	24.2±1.0	28.9±1.1
South Georgia	13	110—120	35—43	15—17	23—26	27—31
		116±2.9	39.1±2.1	15.3±.63	24.7±.93	28.6±1.2
Crozets	3	118—122	40—42	16—17	all 25	28—31
		120±1.2	40.7±.96	16.3±,50		29.7±1.3
Kerguelen	11	109—124	37—41	14—15	23—24	28—30
		117±4.3	39.2±1.4	14.5±.50	23.5±.50	29.1±.69
Auckland Islands	1	110	36	15	24	29
P. urinatrix						
Total	96	108—133	31—43	14—18	23—28	28—37
		120±5.1	38.7±2.4	16.1±.92	25.5±1.2	31.5±1.8
"*urinatrix*"						
New Zealand (large group)	5	129—135	38—42	16—17	26—28	31—36
		131±2.0	40.8±1.6	16.4±.50	26.4±.80	33.2±2.0
"*belcheri*"						
Australia	12	120—132	39—43	16—18	26—28	30—34
		125±3.2	41.0±1.5	16.9±.64	26.3±.64	31.1±1.4
"*chathamensis*"						
New Zealand (small group)	10	111—123	33—40	15—17	23—27	27—33
		119±3.5	37.4±1.8	15.7±.67	25.1±1.2	29.9±2.0
"*dacunhae*"						
Tristan, Gough, Amsterdam	19	108—118	31—40	15—16	23—25	28—31
		115±2.5	35.5±2.8	15.7±.50	24.0±.78	30.0±.94
"*berard*"						
Falklands	9	118—129	38—42	14—17	24—25	29—37
		124±3.7	40.7±1.3	15.4±.83	24.8±.50	32.3±2.1
"*coppingeri*"						
Chile	5	113—121	33—39	15—18	all 25	29—31
		117±2.7	37.2±2.3	16.2±1.0		29.6±.81
"*exsul*"						
Total	36	112—126	35—42	15—18	25—28	30—35
		120±3.5	39.1±1.5	16.1±.89	26.1±.87	32.4±1.8
South Georgia	13	116—124	37—40	15—18	25—27	30—33
		120±3.5	38.9±.93	16.0±.92	25.8±.93	31.5±.84
Crozets & Marion	6	112—125	35—42	15—18	25—27	31—33
		119±4.6	38.5±2.0	16.1±.96	26.3±.76	32.3±.76
Kerguelen	15	112—126	37—41	15—18	25—28	30—35
		121±3.6	39.1±1.2	16.3±.73	26.2±.82	33.3±1.5
Auckland Islands	2	122, 123	40, 42	both 16	27, 28	32, 33

The plumage characters said to distinguish different populations seem as difficult to assess as the measurements since, for example, the distinctive mottled collar of *P.* (*u.*) *exsul* is by no means invariably present and is found from time to time in lower latitude populations, as for example the type of "*P.* (*u.*) *elisabethae*" from Gough Island, where it certainly seems not to be usual. Swales (1965) has already commented on the value of other plumage characters such as the colour of the upper wing-coverts, where even the characteristic white flashes of *P. magellani* are not invariably

specific for that species. To this natural variation must be added the fact that few museum specimens are now really in a fit state to permit refined comparisons of plumage characters while it is impossible to compare different populations directly in life.

Thus it seems possible that geographical variation in diving-petrels of the *urinatrix* group has been over-emphasised, much as in some other petrels with a circumpolar range in the Southern Ocean such as the White-faced Storm-petrel *Pelagodroma marina*, Little Shearwater *Puffinus assimilis* and Wilson's Storm-petrel *Oceanites oceanicus* (Bourne, 1953, 1959, 1964), perhaps to an extent sufficient to obscure specific relationships, as with the giant petrels of the genus *Macronectes* (Bourne and Warham, 1966). As with the giant petrels, an examination of the ecology and distribution of the birds, and especially their laying dates, may help to disentangle their affinities, and it seems likely that as with these other groups the diving-petrels may have broken down basically into groups of populations characteristic of certain circumpolar water masses. On re-examination from this point of view the following trends of variation can be distinguished in populations of, or allied to, *P. urinatrix*:—

1. Nominate *P. urinatrix* Gmelin 1789 from northern New Zealand is the largest form in the group, generally rather dark above and white below although exceptionally the breast is mottled, and tends to lay earliest, by August (Richdale, 1936). The population breeding around south-east Australia (*P. belcheri* Mathews, 1912) averages slightly smaller but is not easily separable from this form, and also apparently lays early. These birds which breed near the Subtropical Convergence appear to be adapted for the subtropical surface waters found on its northern side.

2. *P.* (*u.*) *dacunhae* Nicoll 1906 of Tristan da Cunha in contrast to the preceding is the smallest population examined and also breeds near the Subtropical Convergence, but about a month later, in September (Elliott, 1956). I agree with Swales (1965) that *P.* (*u.*) *elisabethae* Elliott, 1954 of Gough Island appears inseparable in a larger series, while one bird at Paris taken at sea off Amsterdam Island in the Indian Ocean on 11th November, 1965, where it was doubtless breeding, is similar. I am also inclined to refer birds breeding on the southern side of the Tropical Convergence in the New Zealand area off Stewart Island and on the Snares and Chatham Islands to this form as they are little larger and also breed in September (Richdale, 1936, 1945). It seems likely that this race tends to forage to the south of the Subtropical Convergence over colder sub-antarctic surface water.

3. *P.* (*u.*) *berard* Gaimard, 1823 of the Falkland Islands is long in the wing and tail like nominate *urinatrix*, but small in the bill and leg like *dacunhae*, while it lays later than either, about October (Murphy, 1936). It seems possible that it is a specialised form adapted to the cold Falkland Current. It is notable that an intermediate, late-nesting population of Giant Petrel *Macronectes giganteus* is also found in this region of water-mixing (Bourne and Warham, 1966).

4. *P.* (*u.*) *exsul* Salvin, 1896 is intermediate in size between the extreme northern forms, if anything less dark above, and is more commonly speckled on the breast. A series of rather uniform populations breeds much

at the same islands as the equally uniform white-breasted Georgian Diving-petrel *P. georgicus* in a circumpolar zone around the Antarctic Convergence, including the Antipodes and Auckland Islands, possibly Macquarie, Heard Island and Kerguelen, the Crozets and Marion Island, and as reported here, South Georgia, both of them laying fairly close together in November and December, *P. georgicus* possibly averaging a little later though there is much overlap. Several white-breasted birds taken at sea off southern South America have been described as a distinct race *P.* (*u.*) *coppingeri*, but they are close to *exsul* in size and may perhaps best be referred to that form, though their breeding place and season is still unknown. The precise zonal surface water preferences of *P.* (*u.*) *exsul* and *P. georgicus* also still require to be worked out; they might feed on opposite sides of the Antarctic Convergence, *P. georgicus*, if it really nests later, presumably to the south over colder antarctic water because it is not found further north while *P.* (*u.*) *exsul* is, but this is merely speculation, and there may be other ecological differences between them at sea as there are at the breeding stations (Downes, *et al.*, 1959).

If this analysis is correct, the *urinatrix* group of diving-petrels can be broken down into three representatives feeding over distinct subtropical, subantarctic and possibly (?) antarctic zones of surface water in the Southern Ocean, with an intermediate population in a region of water-mixing around the Falkland Islands, in much the same way that the other three species in the family can be arranged in a sequence of three zonal representatives south down the west coast of South America from subtropical *P. garnoti* through subantarctic *P. magellani* to *P. georgicus* with a circumpolar range at the Antarctic Convergence overlapping that of *P.* (*u.*) *exsul*, (Figure 1). It is tempting to speculate that the ancestors of the "*urinatrix*" and "*garnoti*" radiations developed in cold-current refugia off western South

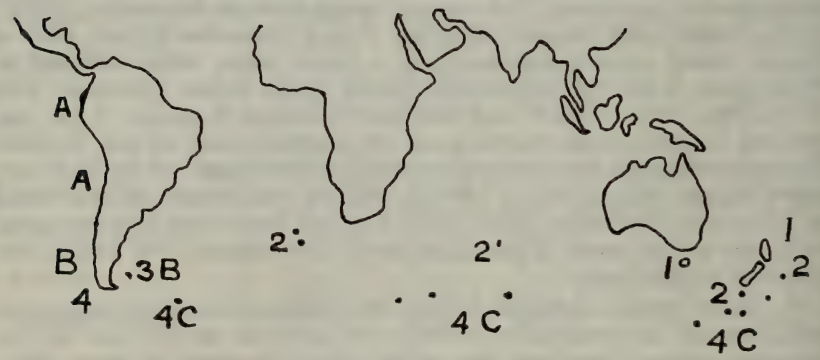

Fig. 1. Distribution of forms of *Pelecanoides*

Letters: members of the "garnoti" series. A, subtropical *P. garnoti*; B, subantarctic *P. magellani*; C, antarctic *P. georgicus*. These possibly have a comparatively coastal distribution?

Numbers: members of the "urinatrix" series, 1, subtropical nominate *P. urinatrix* (including the form *belcheri* of S.E. Australia); 2, low subantarctic *P.* (*u.* or *b*?) *dacunhae* (including the form *chathamensis* of New Zealand?); 3, intermediate *P.* (*u.* or *b.?*) *berard* of the Falkland Current; 4, high subantarctic *P.* (*u.* or *b*?) *exsul* (including the form *coppingeri* of waters off South America?)

America and in the New Zealand and east Australian regions during some past glaciation (probably long ago, as the family is highly distinct and probably old), and that the types developed there subsequently moved south again when the climate improved, leaving derivatives behind in the refugia and also giving rise to others with an overlapping distribution in the southern ocean to produce the situation found today. The forms derived from *P. garnoti* have clearly developed further along this path than those belonging to the "*urinatrix*" group, possibly because the contrasting conditions they encountered were more extreme, and nobody in recent years appears to have questioned that they should be regarded as well-defined species. The same trend towards the development of zonal representatives appears to have proceeded rather less far in the "*urinatrix*" group as well, and the situation here is of some interest.

In the past the main question with regard to the classification of the "*urinatrix*" group of diving-petrels has been the status of *P.* (*u.*) *exsul*, treated by Murphy and Harper (1921) as a distinct species allied to *P. georgicus* on the one hand and *P. urinatrix* on the other. There is now no doubt that it is distinct from P. *georgicus* since they breed together with a distinct ecology at a number of stations, *P.* (*u.*) *exsul* tending to burrow in vegetation on coastal slopes and *P. georgicus* in flat, open places often at considerable altitudes inland, for example (Downes *et al.*, 1959; van Zinderen Bakker, 1967). On the other hand it appears that *P.* (*u.*) *berard* shows intermediate characters between *P.* (*u.*) *exsul* in the south and the populations of *P.* (*u.*) *dacunhae* further north, and these birds apparently behave similarly while there seems no question of sympatry here, so these three forms can presumably be considered conspecific. The situation becomes more complex again where small *P.* (*u.*) *dacunhae* meets large nominate *P. urinatrix* in the New Zealand area.

The limited series of birds available from the New Zealand region fall into two clear groups separated by a wide gap in size, including large birds presumably referable to nominate *P. urinatrix* from the north and small ones resembling *P.* (*u.*) *dacunhae* usually referred to a distinct race *P.* (*u.*) *chathamensis* from the south. However, the three birds I have seen from the Chatham Islands on the Subtropical Convergence include two of the small form at Cambridge and one large female taken by Hawkins with a wing of 133 mm. at Paris, while the subfossil humeri from the island show an equally large range of variation in size (Bourne, 1967). It is generally reported that it is the small form which breeds here; the large bird may be a stray, or wrongly labelled, but if not, it seems possible that both the small and large forms from New Zealand may breed together in the Chatham Islands, in which case, like the two populations of Giant Petrel *Macronectes giganteus* and *M. halli* breeding together on the Antarctic Convergence at Macquarie Island (Bourne and Warham 1966), they will have to be treated as sympatric sibling species presumably adapted to exploit the two different types of surface water that meet in the area at the Convergence.

This situation presents a difficult taxonomic problem, since it is the isolated subtropical form breeding around northern New Zealand whose name has had priority for the whole *urinatrix* group. In recent times all its members have normally been treated as races of *P. urinatrix* whereas the

members of the *garnoti* group have usually been treated binomially, In their recent *A field guide to the birds of New Zealand* Falla *et al.* (1966), have gone on to treat all the local forms of *Pelecanoides* binomially among a good many other debatable taxonomic innovations. Personally I feel that either alternative could be regarded as acceptable until more information becomes available from the field, where there is clearly a need for more comparative studies of these elusive birds. Meanwhile it may be pointed out that there is a marked discontinuity in the normal trend of variation in the members of the "*urinatrix*" series of populations, in that the presence of a large form in the north conflicts with Bergmann's Rule that animals commonly become larger in the cooler parts of their range. This surely suggests a comparable genetic discontinuity in the New Zealand region associated with ecological adaptations for different zones of surface water and quite likely to be allied with occasional sympatry of the dissimilar populations where their habitats meet at the Convergence between the water masses, as at the Chatham Islands, so that it is entirely possible that it may eventually be found necessary to treat the New Zealand forms of the "*urinatrix*" group of diving-petrels as specifically distinct.

If the New Zealand diving-petrels should come to be separated specifically, *P. urinatrix* is probably best treated as a monotypic subtropical species characteristic of northern New Zealand and south-east Australia while the remaining forms, which are linked by an intermediate population and vary in conformity with Bergmann's Rule, becoming larger from north to south, are perhaps best treated as a second polytypic species characteristic of the subantarctic zone, *P. berard*, with three races, small *P. b. dacunhae* with a circumpolar range at islands near the Subtropical Convergence, nominate *P. b. berard* occupying an intermediate position in an area of water mixing around the Falkland Islands, and *P. b. exsul* breeding at islands along the Antarctic Convergence. The whole series may be regarded as a less highly developed counterpart originating in the New Zealand area of the sequence formed by the species *P. garnoti*, *P. magellani* and *P. georgicus* southward in successive climatic zones down the west coast of South America and the Scotia Arc, with the terminal forms of both series overlapping and developing a circumpolar distribution along the Antarctic Convergence of the Southern Ocean.

SUMMARY

Pelecanoides (*urinatrix*) *exsul* has now been found breeding alongside *P. georgicus* in South Georgia, and a specimen, probably of the latter species, found at Signy Island in the South Orkneys. *P. magellani* has also been collected several times in the Falklands, where it may also breed alongside *P.* (*u.*) *berard.* A specimen of the large nominate form of *P. urinatrix* has also been traced from the Chatham Islands, where the small subantarctic form *P.* (*u.*) *chathamensis* (probably identical with *P.* (*u.*) *dacunhae*) is known to breed; if it also breeds there, it seems likely that the "urinatrix" assemblage of diving-petrels will have to be divided into two distinct species, subtropical *P. urinatrix* and subantarctic *P. berard* in addition to currently recognised divisions.

ACKNOWLEDGMENTS

The diving-petrels were first explained to me by Dr. R. A. Falla. Dr. W. L. N. Tickell has also provided important information about the situation he discovered in South Georgia, and Mr. M. Carins about that elsewhere in South America. I am grateful to the staff of the Bird Room at the British Museum (Natural History) for assistance and forebearance in the examination of some very smelly specimens. Dr. D. L. Serventy read a draft of this paper.

References:

Bourne, W. R. P., 1953. On the races of the Frigate Petrel *Pelagodroma marina* (Latham). *Bull. Brit. Orn. Cl.* 73: 79–82.
— 1959. A new Little Shearwater from the Tubuai Isles. *Emu* 59: 212–214.
— 1964. On the occurrence and nomenclature of certain petrels in North America. *Bull. Brit. Orn. Cl.* 84: 114–116.
— 1966. The sea-birds of Gough Island. *Ibis* 108: 632.
— 1967. Subfossil petrel bones from the Chatham Islands. *Ibis* 109: 1–7.
Bourne, W. R. P. and Warham, J. 1966. Geographical variation in the Giant Petrels of the genus *Macronectes*. *Ardea* 54: 45–67.
Elliott, H. F. I. 1957. A contribution to the ornithology of the Tristan da Cunha group. *Ibis* 99: 545–586.
Falla, R. A., Sibson, R. B. and Turbott, E. G. 1966. *A field guide to the birds of New Zealand*. Collins, London.
Downes, N. C., Ealey, E. H. M., Gwynn, A. M. and Young, P. S. 1959. The birds of Heard Island. *A.N.A.R.E. Rep.* B.l.: 1–135.
Johnson, E. J. H. 1965. *The birds of Chile*. Buenos Aires.
Murphy, R. C. 1936. *The Oceanic Birds of South America*. 2 vols., New York.
— 1964 "Diving Petrel" in *A New Dictionary of Birds*, ed. A. L. Thomson, London.
Murphy, R. C. and Harper, F. 1921. A review of the Diving Petrels. *Bull. Amer. Mus. Nat. Hist.* 44: 495–554.
Richdale, L. E., 1936. The Kuaka or Diving Petrel, *Pelecanoides urinatrix*. *Emu* 43: 24–48, 97–107.
— 1945. Supplementary notes on the Diving Petrel. *Trans. Roy. Soc. N.Z.* 75: 42–53.
Swales, M. K. 1965. The sea-birds of Gough Island. *Ibis* 107: 219–221.
Zinderen Bakker, E. M. van, 1967. Observations on the animal life of Marion and Prince Edward Islands. *S. Africa J. Sci.* 1967: 240–246.

A case of virilism in a female Silver Pheasant

by JAMES HARRISON

Received 8th March, 1968

A hen Silver-Pheasant, *Lophura nycthemera* (Linnaeus) which was hatched in the spring of 1962, and which, although in full and normal plumage of the female at the time, was seen displaying vigorously in the spring of 1964.

The display in the male of this species is characterised by the assumption of a very erect posture with the head and neck fully extended and with the wings spread and vibrating rapidly, and the character of the display shown by this individual differed in no way from that of the male. This was the first and only time when the bird was seen displaying nor was there any apparent reason for this behaviour.

On the occasion of any excitement, *e.g.* the presence of a cat or dog, will not infrequently provoke a display in the male.